Appendix A. Federal Clean Energy Programs

As states pursue their clean energy policies and programs, they can obtain assistance from a variety of federal programs, as described below.

Cross-Cutting Programs

Cross-cutting federal programs support planning, program development, and initiatives for both energy efficiency and clean energy supply measures. The U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy (DOE) offer a variety of cross-cutting programs, described below.

Clean Energy-Environment State Partnership Program

This EPA voluntary partnership program is designed to help states review and adopt policies and programs that effectively integrate clean energy into a low-cost, clean, reliable energy system for the state. Clean energy includes energy efficiency, clean distributed generation, and renewable energy. As part of the partnership, EPA works with national organizations to support the state partners, highlight accomplishments, and disseminate lessons learned and best practices. National partners include the National Association of State Energy Officials (NASEO), the National Association of Regulatory Utility Commissioners (NARUC), the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), and the National Conference of State Legislatures (NCSL).

States participating in the Clean Energy-Environment State Partnership Program can use the *Guide to Action* to develop a *Clean Energy-Environment Action Plan* to help identify and implement existing and new energy policies and programs to increase the use of clean energy.

Web site:
http://www.epa.gov/cleanenergy/stateandlocal/partnership.htm

Energy Efficiency and Renewable Energy Projects

The EPA-State Energy Efficiency and Renewable Energy Projects are a joint initiative among EPA, NARUC, and individual state utility commissions. These projects are designed to explore utility regulatory and market-based approaches that deliver significant energy cost savings and other benefits through greater use of energy efficiency, renewable energy, and clean distributed generation. These approaches may include, for example, rate design, resource planning, transmission and distribution planning, and requirements for clean distributed generation (DG).

Web site:
http://epa.gov/cleanenergy/pdf/eere_factsheet.pdf

Federal Energy Management Program (FEMP)

Administered by DOE's Office of Energy Efficiency and Renewable Energy, FEMP promotes energy efficiency and distributed and renewable energy by reducing the operating costs and environmental impacts associated with federal facilities. FEMP advances energy efficiency and water conservation, promotes the use of distributed and renewable energy, and improves utility management decisions at federal facilities. FEMP also offers online information resources, an annual training conference, and workshops to state and local government energy managers. The FEMP Web site provides a compendium of energy efficiency purchasing recommendations, interactive energy cost calculators, and other resources to help purchase energy-efficient products.

Web site:
http://www.eere.energy.gov/femp/

The Industrial Technologies Program

DOE's Office of Energy Efficiency and Renewable Energy supports energy efficiency and renewable energy through the Industrial Technologies Program, which seeks to reduce the energy intensity of the U.S. industrial sector. Through the Best Practices subprogram, DOE works with industry to identify plant-wide opportunities for energy savings and process efficiency.

Web site:
http://www.eere.energy.gov/industry/

State Activities and Partnerships

DOE's Office of Energy Efficiency and Renewable Energy provides technical assistance to state and local jurisdictions that enables them to adopt renewable energy and energy efficiency technologies. The program also offers training and information on funding opportunities and state activities.

Web site:
http://www.eere.energy.gov/states/

The State Energy Program

DOE's Office of Energy Efficiency and Renewable Energy provides grants to states to design and implement their own renewable energy and energy efficiency programs. Because the state energy offices administer their own projects, the technologies and applications that they develop vary widely depending on the state's energy priorities and available renewable resources. This facilitates rapid and inventive deployment of supporting technologies that are environmentally friendly and innovative. These activities cover a wide range of possible projects across all energy-use sectors (i.e., the building, industrial, utility, and transportation sectors). Under the State Energy Program, states have modernized more than 69,000 buildings and completed more than 8,000 energy projects.

Web site:
http://www.eere.energy.gov/state_energy_program/

The Technical Assistance Program (TAP)

The DOE TAP provides state and local officials with quick, short-term access to experts at DOE's national laboratories for assistance with cross-cutting renewable energy and energy efficiency policies and programs that are not currently covered by an existing DOE program. Individualized assistance is available in five eligible areas: (1) system benefit charges or other ratepayer-funded utility efficiency and renewable programs, (2) renewable or efficiency portfolio standards, (3) use of clean energy technologies to help states and localities address air emissions, (4) use of renewable energy on state and local public lands, and (5) disaster relief, mitigation, and planning. Currently, technical assistance is available from three participating laboratories: the National Renewable Energy Laboratory (NREL), the Oak Ridge National Laboratory (ORNL), and the Lawrence Berkeley National Laboratory (LBNL).

Web site:
http://www.eere.energy.gov/wip/informationresources/Tap.html

Energy Efficiency Programs

EPA, DOE, and the U.S. Department of Housing and Urban Development (HUD) administer a variety of programs that provide resources, technical assistance, and research findings on energy efficiency technology and applications.

ENERGY STAR

ENERGY STAR is a voluntary, public-private partnership designed to reduce energy use and related greenhouse gas emissions, where cost-effective. The program delivers significant energy savings, on the order of 135 billion kWh in 2004 or 4% of the nation's total 2004 electricity needs. ENERGY STAR involves an extensive network of partners, including state energy offices, product manufacturers, retailers, home builders, energy service companies, private businesses, and public sector organizations. ENERGY STAR programs employ strategies designed to overcome market barriers and provide information and tools that alter decisionmaking for the long term. Many of the strategies help reduce transaction costs

and lower investment risks, making efficiency projects more attractive. Through ENERGY STAR, EPA and DOE invest in energy efficiency efforts that states and utilities can leverage as part of their energy efficiency programs. Key program areas include:

National ENERGY STAR Education Campaign

Since 1997, EPA has operated broad-based public campaigns to educate consumers about the link between energy use and air emissions and to raise awareness about how products and services carrying the ENERGY STAR label can protect the environment while saving them money. Local energy efficiency programs can take advantage of national efforts by incorporating relevant messages or leveraging the campaign via marketing, customer education, and outreach.

Qualifying Products

A government-backed energy efficiency designation—the ENERGY STAR label—is on products in more than 40 categories for the home and business, including heating and cooling, lighting, office equipment, appliances, windows, home electronics, and commercial food service equipment. Each year, EPA and DOE spearhead product-specific national campaigns, enable information exchange on well-developed utility-retailer program models, hold national partner meetings that facilitate networking and collaboration, and provide an array of online resources. Because of ENERGY STAR's well-developed program models and infrastructure, the promotion of ENERGY STAR qualifying products offers a good starting point for new energy efficiency programs.

Existing Homes

ENERGY STAR provides opportunities for obtaining substantial energy savings from improving the heating and cooling systems and envelopes in existing homes; this represents a savings potential that cannot be obtained solely through use of energy-efficient products. The ENERGY STAR program offers specifications for home improvement services such as Home Performance with ENERGY STAR, which emphasizes home diagnostics and evaluation, improvements made by trained technicians and building professionals, sales training, and strong quality assurance. In addition, ENERGY STAR offers systems solutions for home sealing, heating and cooling system best practices, and duct sealing and provides valuable online consumer tools including the Home Energy Yardstick.

New Homes

ENERGY STAR qualifying homes are substantially more efficient than homes built to a model energy code. EPA provides a number of tools to engage home builders in constructing ENERGY STAR qualifying homes, including builder recruitment and sales materials and consumer education and outreach. Many energy efficiency programs promote ENERGY STAR qualifying homes by providing builder training, consumer education, and direct verification of home performance or incentives to offset the cost of verification. Other incentives might include co-op marketing incentives and rebates for qualifying homes.

Commercial Building Performance

The energy efficiency of commercial buildings can be dramatically affected by design, sizing, installation, controls, and operations and maintenance. To better ensure that measures such as lighting, controls, high-efficiency air conditioning, motors, and variable speed drives will deliver expected energy savings, EPA designed an Energy Performance Rating System to measure the energy performance at the whole-building level. Buildings that score low (on a scale of 1 to 100) are typically good candidates for cost-effective improvements, and buildings that score high are eligible for the ENERGY STAR label. ENERGY STAR-labeled buildings use 40% less energy and cost 40% less to operate than average buildings. EPA also works with building owners to encourage them to adopt organization-wide energy management approaches. EPA is working with utility programs throughout the country to integrate these strategies into commercial programs to enhance program uptake and effectiveness.

Industrial Energy Efficiency

ENERGY STAR promotes and encourages superior corporate energy management through the provision of tools and resources specific to the needs of manufacturers. Unique resources offered by ENERGY STAR for manufacturers include opportunities to participate in sector-focused activities, networking

opportunities with other industrial energy managers in the broad partnership, the industrial Web site, energy program communication resources, and assistance in developing or improving a corporate energy performance program. Each year, the industrial partnership identifies certain manufacturing sectors to engage in focus activities. These activities include an in-depth study and assessment of energy efficiency opportunities within the sector; production of an energy performance indicator for plants in the sector; and sector-specific energy working groups, including focus meetings aimed at improving corporate energy performance. The partnership currently includes more than 450 participating industrial companies of varying sizes and coordinates focus initiatives with seven industrial sectors.

Web site:
http://www.energystar.gov

Building America

Building America is a DOE/industry partnership that develops energy solutions for new and existing homes. Building America combines the knowledge and resources of building industry leaders with DOE's technical capabilities. The ultimate goal of the program is to achieve a 70% reduction in total home energy use, enabling the balance of energy requirements to be easily met by a solar electric system. As of October 2003, the Building America approach has been used in the design of more than 20,000 houses in 34 states. This accomplishment is a result of the efforts of more than 250 builders implementing projects in many cities across the United States.

Web site:
http://www.eere.energy.gov/buildings/building_america/

Building Technologies Program

DOE's Building Technologies Program helps improve building energy efficiency through the use of innovative new technologies and better building practices. The program includes research and regulatory activities. Research activities advance the next generation of energy-efficient components, equipment, and materials, including a whole-building approach that optimizes building performance and savings. Regulatory activities include efforts to work with state and local regulatory groups and other interested parties to improve building codes, appliance and equipment standards, and guidelines for efficient energy use, and to assist states in updating, implementing, and enforcing their building energy codes.

Web site:
http://www.eere.energy.gov/buildings/

Weatherization Assistance Program (WAP)

Under WAP, DOE works with states and local governments to help low-income families reduce their energy bills by making their homes more energy efficient. Through WAP, weatherization service providers install energy efficiency measures in the homes of qualifying homeowners free of charge. During the last 27 years, WAP has provided weatherization services to more than 5.3 million low-income families. Weatherized households have average energy savings of $224 per year, which amounted to a cost savings of more than $1 billion for all homes served during winter 2000.

Web site:
http://www.eere.energy.gov/weatherization/

The Partnership for Advancing Technology in Housing (PATH)

PATH is a public-private initiative dedicated to accelerating the development and use of technologies that radically improve the quality, durability, energy efficiency, environmental performance, and affordability of America's housing. PATH is a collaborative partnership managed by HUD that spurs change in housing industry design and construction.

Web site:
http://www.hud.gov/offices/cpd/energyenviron/energy/initiatives/index.cfm#path

Partnerships for Home Energy Efficiency (PHEE)

PHEE is a multi-agency (i.e., DOE, EPA, and HUD) program to help households reduce their home energy bills by increasing awareness of ENERGY STAR products, developing new energy efficiency services for homeowners; delivering energy efficiency savings to subsidized and low-income housing; and investing in innovative research in building science technologies, practices, and policies. PHEE incorporates HUD's PATH Roadmap for Energy Efficiency in Existing Homes, which outlines a series of strategies for boosting the energy-efficient remodeling of existing homes and the HUD Energy Action Plan, which promotes energy efficiency in 5 million housing units that have been assisted, insured, or financed by HUD.

The goal of PHEE is to help households save 10% or more on home energy bills over the next 10 years. The initiative builds on existing policies and programs that involve partnerships with manufacturers, retailers, home contractors and remodelers, utilities, states, financial organizations, educational institutions, and others to leverage the power and creativity of the marketplace. Key efforts include:

- Expanding efforts to promote ENERGY STAR products.
- Promoting energy efficiency in affordable housing.
- Continuing to invest in innovative research in building science technologies, practices, and policies.

Web site:
http://www.energysavers.gov/

Clean Energy Supply Programs

EPA and DOE offer a variety of clean energy supply programs that provide information, technical assistance, and research findings related to renewable energy and clean distributed generation, including combined heat and power.

The Combined Heat and Power (CHP) Partnership

The objective of this program is to reduce the environmental impact of power generation by fostering the use of CHP. Through the CHP Partnership, EPA works closely with energy users, the CHP industry, state and local governments, and other stakeholders to support the development of new projects and promote their energy, environmental, and economic benefits.

Web site:
http://www.epa.gov/chp

The Green Power Partnership

The Green Power Partnership is a voluntary partnership between EPA and organizations interested in buying green power. EPA provides technical assistance and recognition to organizations that pledge to replace a portion of their electricity consumption with green power within a year of joining the partnership.

Web site:
http://www.epa.gov/greenpower/

Buildings Cooling Heating and Power (BCHP) Initiative

The BCHP Initiative is part of the broader building technology efforts of DOE's Office of Energy Efficiency and Renewable Energy. The initiative addresses onsite fuel technologies that make it possible to combine power generation and heating, ventilation, and air conditioning (HVAC) system optimization and integration with other innovative building technologies related to thermal utilization, cooling, and dehumidification.

Web sites:
http://www.eere.energy.gov/de/pdfs/bchp_roadmap.pdf
(describes the BCHP Initiative)

http://www.chpcentermw.org/
(information on the Midwest CHP Application Center [MAC], one of several centers established by DOE to facilitate deployment of CHP technologies through the provision of application assistance, technology information, and educational support.)

Distributed Energy Program

DOE's Distributed Energy Program supports research and development with the goal of lowering costs for distributed energy technologies, reducing emissions,

and improving the reliability and performance of these technologies. Program activities focus on two technology areas: distributed energy technologies (including gas-fired reciprocating engines, industrial gas turbines, and microturbines) and integrated energy systems such as CHP.

Web site:
http://www.eere.doe.gov/de/

Geothermal Technologies Program

DOE administers the Geothermal Technologies Program in partnership with industry to help promote geothermal energy as an economically competitive contributor to the U.S. energy supply. It seeks to develop hydrothermal, direct use, and shallow depth area technologies to achieve long-term viability. This program produces many benefits, such as economic competitiveness, environmental improvement, and sustainability of resources.

Web sites:
http://www.eere.energy.gov/geothermal/

http://www.eere.energy.gov/RE/geothermal.html

Hydrogen, Fuel Cells, and Infrastructure Technologies Program

DOE is working with its partners to accelerate the development and successful market introduction of hydrogen, fuel cell, and infrastructure technologies. DOE's Web site provides information on the agency's research, development, and applications in these areas.

Web sites:
http://www.eere.energy.gov/hydrogenandfuelcells/

http://www.eere.energy.gov/RE/hydrogen.html

Million Solar Roofs

DOE is supporting the Million Solar Roofs initiative through national, state, and local partnerships to install solar energy systems (photovoltaic and solar thermal systems) in one million U.S. buildings by 2010. While this program does not direct state actions or provide funding for solar energy systems, it does facilitate collaboration between the federal government, key national businesses, and organizations. This cooperation allows partners and stakeholders to focus on building a strong market for solar energy applications in buildings.

Web site:
http://www.millionsolarroofs.org/

Solar Energy Technologies Program

Through its Solar Energy Technologies Program, DOE works with other federal, state, and local agencies; national laboratories; universities; industry; and professional organizations to research, develop, and deploy cost-effective technologies to expand the use of solar energy throughout the United States and the world. DOE provides information on solar technologies and applications including concentrating solar power, photovoltaics, solar heating, and solar lighting.

Web sites:
http://www.eere.energy.gov/solar/

http://www.eere.energy.gov/RE/solar.html

Wind and Hydropower Technologies Program

DOE's Office of Energy Efficiency and Renewable Energy is working to improve wind energy technology so it can generate competitive electricity in areas with lower wind resources and to develop new, cost-effective, advanced hydropower technologies that will have enhanced environmental performance and greater energy efficiencies. DOE provides information on its Web site on both wind and hydropower energy resources, applications, and technologies.

Web sites:
http://eere.energy.gov/windandhydro

http://www.eere.energy.gov/RE/wind.html

http://www.eere.energy.gov/RE/hydropower.html